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THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Mark Lauer Ser. No: 09/912,723
Filing Date: July 23, 2001 Examiner: W. Klimowicz
Docket No: LAUM-004 GAU: 2652
For: ELECTROMAGNETIC HEADS, FLEXURES, GIMBALS AND
ACTUATORS FORMED ON AND FROM A WAFER SUBSTRATE

June 12, 2006

MS Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF FOR APPELLANT

This is a Reply Brief responsive to an Examiner's Answer mailed April 13, 2006.
This Reply Brief supplements but does not replace appellant's Appeal Brief mailed
December 8, 2005.

Real Party In Interest

Mark Lauer is the real party in interest.

Related Appeals and Interferences

Appellant knows of no other appeals or interferences that will directly affect or be
directly affected by or have a bearing on the Board's decision in this pending Appeal.

Status of Claims

Appellant agrees with the Examiner's statement of the Status of Claims.

Status of Amendments

Appellant agrees with the Examiner's statement of the Status of Amendments after Final Rejection, but notes that the Examiner's statement is incomplete.

In addition to the amendments noted by the Examiner, on September 30, 2005, appellant filed a Second Amendment After Final Rejection, which was not entered by the Examiner.

Summary of Claimed Subject Matter

Appellant and the Examiner agree on the Summary of Claimed Subject Matter.

Grounds of Rejection to be Reviewed on Appeal

Appellant agrees with the Examiner's statement of the Grounds of Rejection to be Reviewed on Appeal. To avoid confusion, the Grounds of Rejection to be Reviewed on Appeal are shown below with their current status.

- (1) The rejection of claims 23, 26 and 29 under 35 U.S.C. §112, ¶ 2 is vacated.
- (2) The rejection of claims 23, 26 and 29 under 35 U.S.C. §112, ¶ 1 is vacated.
- (3) The rejection of claims 1, 7-10, 20-25, 27 and 28 under 35 U.S.C. §102(b) as allegedly being anticipated by Japanese Published Application No. 09-035230 to Harada et al. ("Harada") is vacated as to claims 22 and 28.
- (4) The rejection of claims 21-23 and 27-29 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,757,573 to Tokuyama et al. ("Tokuyama") is vacated as to claims 22 and 28.
- (5) The rejection of claims 2-4, 11-14, 17, 19, 24 and 25 under 35 U.S.C. §103(a) as allegedly being unpatentable over Harada in view of IBM Technical Disclosure Bulletin entitled "Piezoelectric Actuator for Small Hard Disk Drive," Vol. No 36, Iss. No. 2, pp. 379-380, published February 1, 1993 ("IBM TDB") is vacated as to claims 3, 13, 24 and 25.
- (6) The rejection of claim 6 under 35 U.S.C. §103(a) as allegedly being unpatentable over Harada in view of Japan Patent JP 06-176517 A to Endo ("Endo").

(7) The rejection of claim 18 under 35 U.S.C. §103(a) as allegedly being unpatentable over Harada in view of Endo and in further view of Japan Patent JP 09-148639 A to Fukuoka (“Fukuoka”).

(8) The rejection of claims 21 and 27 under 35 U.S.C. §103(a) as allegedly being unpatentable over Harada is vacated.

(9) The rejection of claims 24-26 under 35 U.S.C. §103(a) as allegedly being unpatentable over Tokuyama in view of IBM TDB is vacated as to claim 25.

Argument

I. Pages 6-14 of the Examiner’s Answer appear to be a reprint of the Final Rejection with the vacated grounds of rejection excised. Appellant has already responded to these arguments in the Appeal Brief mailed December 8, 2006, and will not reiterate that response in this Reply Brief.

II. Beginning on page 14 the Examiner’s Answer sets forth a “Response to Arguments” to which appellant responds as follows.

A. The Examiner’s Opposite Interpretations of “Adjoining”

At the outset, the Examiner states that he is applying the term “adjoining” as he states the CAFC has interpreted it in a different case. According to the Examiner, the CAFC effectively stated that the term “adjoining” was to be interpreted in that case as “contacting.”

Previously, appellant had appealed the Examiner’s Final Rejection of October 3, 2003 by alleging several errors, one of which was the Examiner’s interpretation of the word “adjoining” as meaning “next to.” The unreasonableness of that interpretation was evident in the arguments of that previous Final Rejection, which would seem to allow any two objects to be “adjoining” irrespective of the distance separating those objects and the number and nature of any objects that may be disposed between.

The Examiner now maintains an essentially opposite position on pages 14 and 15 of the Examiner’s Answer, asserting that “adjoining” requires direct contact, based upon the Federal Circuit Court decision involving similar but different facts than the current

case, and decided in a litigation rather than prosecution setting. Applicant disagrees with the Examiner's latest interpretation as being overly narrow. For example, the Examiner's latest interpretation excludes reasonable interpretations of "adjoining" that were provided by the Examiner's dictionary definition of adjoining, such as "nearly in contact," "bordering" and "attach(ed) by joining." As another example, the word "adjoining" is commonly used to describe rooms that have a wall separating them (i.e., "adjoining rooms") in which case the rooms are not in direct contact but share a border. Should such rooms have something more than a border or wall between them, such as a stairwell, the rooms would not be said to be "adjoining" but rather could be described as "adjacent rooms." If instead a third room were disposed between the first two rooms, the first two rooms would not be termed "adjacent" or "adjoining."

As noted on page 31, lines 17-19 of appellant's Amendment After Final Rejection mailed September 6, 2005: "Suffice it to say that applicant believes that the Examiner has flip-flopped between two extremes in his interpretation, while avoiding the more reasonable middle ground." Indeed, it is difficult to reconcile the Examiner's original interpretation that any two objects could be "adjoining" irrespective of the distance separating those objects and the number and nature of any objects that may be disposed between, with the new interpretation that those objects must be in contact.

In a separate section of the Examiner's Answer, on page 27, lines 19-20, the Examiner notes "the procedure that the Examiners are charged with during *ex parte* prosecution, that is, giving claims their broadest reasonable interpretation." The rationale for this requirement is noted in MPEP §2111, which states: "Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified." The Examiner has offered no reasoning supporting his narrow interpretation of "adjoining," other than referring to the CAFC case. Beginning with a "Second Amendment" mailed May 11, 2005 responsive to the Examiner's reopening of prosecution with a new rejection setting forth his new interpretation of "adjoining," applicant has provided reasons why the Examiner's new interpretation is not the "broadest reasonable." The Examiner has offered no answer other than to cite the CAFC case and to claim, for example on page 15 of the Examiner's Answer, that "the Appellant

has had ample opportunity to modify the term ‘adjoining,’ but has *not* exercised this *option* to do so.” Appellant respectfully submits that he should not be forced to amend claims as the Examiner flip-flops between two extremes of interpretation.

B. The §102 Rejection of Claims 1, 7-10, 20-25, 27 and 28 Based On the Examiner’s “New” Translation of Harada et al. (JP 9-035230 A)

Beginning on page 15 of the Examiner’s Answer, the Examiner responds to appellant’s argument that unexamined Japanese application Harada et al. (JP 9-035230 A; hereinafter “Harada”) is nonenabled. The Examiner supports his position by providing a “new” translation of Harada. The “new” translation is dated July 2005, which corresponds to the mailing of the Final Rejection, but appellant was not provided a copy until May 16, 2006, in response to appellant’s telephone calls to the Examiner. The “new” translation’s date of July 2005 is also two months after appellant’s “Second Amendment” of May 2005, which responded to the Examiner’s new rejection over Harada by arguing, in part, that Harada is nonenabled. Multiple written communications from the Examiner to appellant have occurred since July 2005, yet the Examiner chose not to provide his “new” translation either separately or in conjunction with any of those communications, and further did not even provide his “new” translation with the Examiner’s Answer.

On page 16 of the Examiner’s Answer, the Examiner states that the “new” translation supports the Examiner and undermines the appellant. The Examiner also states in the same section that the English-language abstract of Harada coupled with the drawings, alone, would have been readily understood by one of ordinary skill, and that the machine translation merely added to the abstract. But readily understood is not the same as enabled. And if Harada had been enabled based on the abstract and machine translation, why would the Examiner feel the need to provide the “new” translation?

Of course, at this stage appellant is not allowed to submit new evidence that would undermine the “new” translation, but apparently the Examiner is under no such constraint. Moreover, the “new” translation differs substantially from the prior translation unless, for example, one of skill in the art would have equated “defecates” with “purified.” In addition, the “new” translation raises additional questions about

enablement of Harada. For instance, one of ordinary skill in the art would have expected that the thin-film magnetic head 1 of Harada, when removed from the substrate it was formed on, to have curled up like a potato chip due to differential expansion and contraction by the different material layers of the head 1, making surface-activated bonding that depends upon an exact fit between the surfaces being bonded difficult if not impossible. Perhaps this is why Hitachi chose to withdraw Harada rather than have it examined and potentially issue as a patent. Appellant also finds it curious that no corresponding U.S. patent has been issued to Harada. Did Hitachi feel it not worthy of an application in the largest market in the world or was Harada rejected and abandoned due to nonenablement?

On the last lines of page 16 of the Examiner's Answer, however, the Examiner self-righteously proclaims that "Once again, the appellant's arguments have proven to be meritless," even though this proclamation is found at the beginning of his Response to Arguments and is based on his "new" translation, which appellant cannot submit evidence to undermine but which, as noted above, is still nonenabled.

On page 17 of the Examiner's Answer, the Examiner again cites his "new" translation of Harada to assert that Harada teaches another limitation of claims 1 and 20. In addition, appellant notes that the Examiner's Answer misquotes appellant by stating:

At page 19 of the Appeal Brief, the Appellant alleges that Harada et al. (JP 9-035230 A) fails to disclose an actuator in which the arm of Harada et al. (JP 9-035230 A) connects to the actuator.

Appellant argued instead that according to the drawings and abstract of Harada, "actuator 7" does not appear to be even in "non-direct contact" with that arm, in contrast to the assertions of the Final Rejection, which emphasized: "As is clearly depicted in such Figures, the actuator is represented by designator (7)."

Appellant also disagrees with the Examiner's new assertion that "the depiction within Figure 1 of Harada et al. (JP 9-035230 A) is the conventional schematic of a voice-coil motor (VCM) positioning actuator." Harada does not show "an energized voice coil actuator is *directly* fixed to the arm of an actuator" as alleged by the Examiner's Answer on page 17, lines 14-15. Moreover, should there be such a "coil that must be affixed to the actuator," as alleged by the Examiner's Answer on page 17, line

22, one would expect the “electric wirings 4” which are shown disposed in the space between those “actuator 7” to have current induced by the changing current in the coils, causing erroneous writing and reading by the head 1, evidencing either that the Examiner’s interpretation of Harada is incorrect or that Harada is nonenabled.

The Examiner’s bias against appellant surfaces occasionally in the Examiner’s Answer, as it has throughout the extended prosecution of this application. For example, on page 18 the Examiner’s Answer, the Examiner offers to reconsider the 102 rejection only “If the appellant can submit evidence that would defy the laws of physics.” Such evidence would presumably be rather difficult to come by, and appellant cannot submit new evidence in an appeal in any event. Moreover, assuming *arguendo* that appellant could obtain and submit such evidence, the Examiner only offers to “reconsider the 102 rejection, and modify it accordingly.”

Fortunately, appellant does not need to “submit evidence that would defy the laws of physics” to “provide a showing that wherein no component of an actuator is attached to a rotatable body to cause it to move.” Many forces are known to operate at a distance. Gravity, electric and magnetic forces are some examples. Wind and water can also operate at a distance to move a body. Even the impact of individual photons can cause a body to move, and is used in experiments testing the theory of the dual wave and particle nature of light. It is possible that any of these forces could be embodied in an actuator that operates at a distance from a body to cause the body to move. Moreover, appellant respectfully submits that the drawings and abstract of Harada do not show that “actuator 7” is directly attached to “slider 2.”

On pages 19 and 20 of the Examiner’s Answer, the Examiner offers for the first time an explanation for his assertion that Harada discloses the means-plus function limitations of claim 20, “actuation means for positioning said transducer...said actuation means attached to said substrate distal to said transducer.” To do this the Examiner relies on several unjustified assumptions. The Examiner points to appellant’s own FIG. 2, which does not disclose an actuator, so the Examiner claims that one must exist and must be of the type disclosed in Harada, although the type of actuator disclosed in Harada is unclear. The Examiner then points to appellant’s Background section, which mentions a conventional actuator, so the Examiner claims that such a conventional actuator must be

of the type disclosed in Harada, although the type of actuator disclosed in Harada is unclear. This newly explained rejection is essentially a house of cards built on unjustified assumptions.

The Examiner's Answer then provides a lengthy quote from *Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc.*, (54 USPQ2d 1185) (CAFC 2000), but fails to mention a later case that is closer to the current facts and that distinguishes *Clearstream*. As stated in *Display Techs., LLC v. Mechtronics Corp.*, 335 F. Supp. 2d 431, 439 (D.N.Y. 2004): "*Clearstream* does not, however, stand for the proposition that structures are claimed when they are 'in no way described as part of any embodiment of the claimed invention.' See *NCR Corp. v. Palm, Inc.*, 217 F. Supp. 2d 491, 517 (D. Del. 2002)." *Display Techs.* goes on to say "Moreover, the facts in *Clearstream* were somewhat unique, which raises questions about the scope of that holding. Specifically, the prior art at issue in *Clearstream* was described in the plaintiff's patent in intricate detail, which supported the court's inference that this prior art was an embodiment of the claimed invention. Here, by contrast, the Patent merely mentions dovetail connectors in passing and contains no description of the mechanics of these connectors." *Display Techs.* at 440.

The current application presents facts that are even more compelling than those of *Display Techs.* Appellant's Background section mentions in one line a "conventional actuator," with no description beyond those two words, and does not say that a conventional actuator is a "VCM actuator" as suggested by the Examiner's Answer. In contrast, the patent at issue in *Display Techs.* teaches "various horizontal or vertically expending dovetail key/keyhole connectors, and the like" in its BACKGROUND OF THE INVENTION, and also mentions "a dovetail arrangement" in its DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS. Further, appellant's single mention of a "conventional actuator" does not say that a conventional actuator must be of the type disclosed in Harada, which type is at best unclear. In particular, the current application merely mentions a "conventional actuator," without any hint that it would be a "VCM actuator," as stated in the Examiner's Answer. FIG. 2 of appellant's invention does not show any actuator, and no text corresponding to FIG. 2 even mentions any actuator. The Examiner's Answer has essentially conjured a "VCM actuator" out of thin

air, which it then claims that Harada discloses according to the Examiner's "new" translation, although Harada does not mention a VCM actuator.

On page 20, the Examiner states that it is telling that appellant has not identified the structure, material or acts described in the specification as corresponding to the claimed function. On the contrary, appellant notes that the "actuation means" of claim 20 was noted in the Summary of Claimed Subject Matter (which the Examiner's Answer on page 2 agrees is correct) on page 3, lines 14-18 of the Appeal Brief to correspond to: "FIG. 20: 404, 408,; FIG. 21: 404, 408, 455; FIGs. 22-23: 404, 408, 452, 455; FIG. 24: 502, 505, 522, 525, 530, 533; FIG. 25: 505, 525, 533; FIGs. 26 and 27: all except 600; FIG. 28: all except 710; p. 4, l. 27 - p. 5, l. 2; p. 22, l. 1 - p. 23, l. 16; p. 25, ll. 8 - 28; p. 26, ll. 1 - 32; p. 27, l. 19 - p. 31. l. 20; Abstract: ll. 4, 7 and 19." Moreover, appellant could not fathom the argument that the Examiner first proposed in the Examiner's Answer, that the mention of a conventional actuator in the Background and a figure that does not show an actuator could be twisted to read on Harada.

The Examiner's Answer does not refute appellant's comments regarding claim 7, nor could it. Claim 7 recites:

The device of claim 1, wherein said rigid body has a media-facing-surface separated from a back surface in a Z-direction, and at least a portion of said flexible elements is disposed at a Z-height between said surfaces.

As noted in the Appeal Brief, "slider 2" of Harada does not have a "media-facing-surface" as alleged by the Final Rejection, but is instead covered by "magnetic head 1." On page 22 the Examiner's Answer alleges with regard to claim 9 that "the rigid body as set forth in the claims does not in any way preclude said rigid body from being two integral members directly contacting and fixed to each other, i.e., the rigid body ...includes both the wafer substrate and the head formed thereon." Appellant responds that the Examiner must have failed to read claim 1, from which claims 7 and 9 depend, and which sets forth as a first element "an electromagnetic transducer," and which sets forth as a second element "a substrate adjoining said transducer, said substrate shaped as a rigid body..." Thus, while the transducer may have a media-facing surface according to claim 7, the rigid-body "has a media-facing-surface," in contrast to Harada, which shows the head 1 rather than the slider 2 having a media-facing surface.

With regard to claim 9, which also recites “wherein said rigid body has a media-facing-surface,” the Examiner’s Answer on page 21, line 23 – page 22, line 2:

Although magnetic head (1) does indeed cover the media-facing surface of the slider (2), the slider (2) nevertheless has a surface which is parallel to and faces the disk (6). It is just an unexposed face. If Appellant’s (*sic*) were to be believed, a Halloween-mask-wearing trick-or-treater would be void of a face behind the mask.

Extrapolating the Examiner’s argument, every atom within Harada’s slider 2 would have a surface, just one that is not exposed due to other atoms. And every such atom would be an electromagnetic head, because each such atom is generally head-shaped and has electrons and protons that interact with each other and with neighboring atoms due to electromagnetic forces. In fact, given the unreasonably broad interpretations that the Examiner has promulgated in this application (except for when it suits him to be unreasonably narrow), virtually anything could read on appellant’s claims.

Moreover, one of ordinary skill in the art would be well aware of the term “air-bearing surface,” also known by its acronym as an “ABS,” and would not imagine that slider 2 of Harada, which is covered by head 1 of that reference, has an ABS. Appellant’s head 33 can operate in contact with a medium or removed from a medium by an air bearing, and so has a surface that is known by the more general term of “media-facing surface,” which one of such skill would recognize that Harada’s slider 2 does not have.

The Examiner’s Answer on page 22 then quotes paragraph [0050] of appellant’s specification, which notes that a protective coating may (or may not) be formed. As noted therein: “For the situation in which such a protective coating was formed over the media-facing surface prior to defining pads 48, 49 and 50, the head 33 may not be coated again.” In that case, “defining pads 48, 49 and 50” would expose media-facing portions of the “substrate 100” in other areas. Moreover, the protective coating mentioned in paragraph [0050] and elsewhere in the specification is so thin as to not be shown, and one of ordinary skill in the art may consider such a coating to be the media-facing surface of a “rigid body,” as opposed to the “electromagnetic transducer including a plurality of solid transducer layers,” which is recited as a separate element in claim 1 from the “rigid body” of that claim.

The Examiner's Answer on page 22, line 23 – page 23, line 18, twists a single use of the word “formed” in an attempt to equate appellant's “head 33” with “substrate 100,” despite clear differences in the drawings and text. The Examiner's interpretation ignores, for example, title of the invention, and paragraph [0067] of appellant's specification, which states in part: “Much as above, device 400 is formed on and from a wafer substrate...” As noted on page 5, lines 3-5 of appellant's Appeal Brief of December 8, 2005, the Examiner's interpretation “is misleading in that it either ignores or purposefully disregards the ‘substrate 100’ that is shown for example in FIG. 3 as part of ‘the head 33.’” Indeed, the Examiner's interpretation equating the “head 33” and “substrate 100” is that which was thoroughly refuted on pages 4-15 of the Appeal Brief of December 8, 2005, that argument mooted as per claims 23, 26 and 29 due to appellant's failure to file a Petition in addition to the Appeal Brief.

Moreover, the Examiner's interpretation purposefully ignores claim 1, from which claim 9 depends, and which sets forth as a first element “an electromagnetic transducer,” and which sets forth as a second element “a substrate adjoining said transducer, said substrate shaped as a rigid body...”

The Examiner's Answer alleges, on page 24, lines 22-23, that “Harada et al. (JP 9-035230 A) is clearly and unquestionably enabled,” with which appellant disagrees, as mentioned above. The Examiner's Answer goes on to argue, in the last paragraph of page 24 bridging page 25, that “the actual ‘transducing’ performed by the head of Harada et al. (JP 9-035230 A) is at the pole tips is at the pole tips and fringing gap located proximate designator (113) in FIG. 3.” Appellant respectfully disagrees. To transduce is to convert energy from one form to another. The “pole tips and fringing gap” do not convert energy from one form to another. The form of energy in the “pole tips and fringing gap” is magnetic, as is the form of energy in the medium with which Harada is alleged to communicate. The form of energy in the “coil 111” of Harada is alleged to be electrical, and so all the layers that accomplish the conversion between electrical and magnetic energy in Harada, including any layers that insulate the “coil 111” from the “yoke 112,” or other layers that help to allow the energy conversion would seem to be transducer layers of Harada.

The Examiner's Answer on page 24, lines 5-8 then points to Figure 9 of Harada as allegedly teaching "wherein the head and its associated layers are orientated perpendicular to the disk." Appellant objects to the disclosure of Figure 9 of Harada as being even more nonenabled than the other figures of Harada that show the head 1 disposed between the slider 2 and the medium 6. For example, Harada does not teach, and it would not be evident to one of ordinary skill in the art, how the wirings 4 and slider 2 of Figure 9 would be "purified" ("defecates") to allow "surface-activated bonding" to occur. Moreover, even the "new" translation of Harada notes in paragraph [0040] that "the use of silicon, which is also the material of the gimbal [3], eliminates a strain that occurs due to a difference in the thermal expansion coefficient during bonding." Harada, however, fails to teach how to overcome that strain between the metal wirings 4 and the head 1, which would be much greater than that between silicon and "conventional ceramics," due to a larger difference in the coefficients of thermal expansion.

C. The §102 Rejection of Claims 21 and 27 as Allegedly Anticipated by U.S. Patent No. 5,757,573 to Tokuyama et al. ("Tokuyama")

After quoting appellant's Appeal Brief of December 8, 2005, the Examiner's Answer on page 26 alleges: "It is unclear what Appellant is alleging the Examiner isn't showing in the rejected claims," and then diverts for a page to discussing why claims 21 and 27 were rejected over Tokuyama but claims 1 and 20 were not.

Nowhere does the Examiner's Answer refute, however, appellant's argument on page 26, lines 1-12 of the Appeal Brief that Tokuyama does not teach "a substrate adjoining said transducer, said substrate shaped as a rigid body adjacent to said transducer and as a plurality of flexible elements distal to said transducer," as recited in claim 1 and claim 20. As noted in that section of the Appeal Brief:

None of the figures of Tokuyama, including those cited by the Final Rejection, show these elements of claim 1 or claim 20 ***arranged as in those claims***. For instance, FIGs. 5 and 6 do not show "a plurality of flexible elements," in contrast to claim 1 and claim 20. Similarly, FIGs. 23 and 24 do not show a "substrate shaped as a rigid body adjacent to said transducer," in contrast to claim 1 and claim 20.

Appellant notes that on page 28, line 3 of the Examiner's Answer the Examiner has added FIG. 7 to the list of figures of Tokuyama that allegedly teach these limitations, but FIG. 7 shows neither "a plurality of flexible elements," nor a "substrate shaped as a rigid body adjacent to said transducer."

Regarding claim 20, appellant disagrees with the Examiner's Answer on page 30, which conjures a "conventional VCM actuator" where one is not disclosed in appellant's specification and then rejects claim 20 over Harada, rather than Tokuyama. Because Harada appears to have a very different type of actuator than Tokuyama, one can understand that the Examiner would not wish to call both a "conventional VCM actuator." As mentioned above, the "actuation means" of claim 20 was noted in the Summary of Claimed Subject Matter (which the Examiner's Answer on page 2 agrees is correct) on page 3, lines 14-18 of the Appeal Brief to correspond to: "FIG. 20: 404, 408;; FIG. 21: 404, 408, 455; FIGs. 22-23: 404, 408, 452, 455; FIG. 24: 502, 505, 522, 525, 530, 533; FIG. 25: 505, 525, 533; FIGs. 26 and 27: all except 600; FIG. 28: all except 710; p. 4, l. 27 - p. 5, l. 2; p. 22, l. 1 - p. 23, l. 16; p. 25, ll. 8 - 28; p. 26, ll. 1 - 32; p. 27, l. 19 - p. 31, l. 20; Abstract: ll. 4, 7 and 19."

The Examiner's Answer on page 30, lines 10-12 states that "Tokuyama... discloses a piezoelectric actuator mounted in synthetic layer (32) for causing actuation movement of the substrate." Appellant notes that claim 20 sets forth as a first element, "a substrate," and sets forth as a second element "actuation means for positioning said transducer." In contrast, Tokuyama teaches, in column 15, lines 54-55, "a synthetic resin film 32 with a piezoelectric element built therein." Thus, assuming arguendo that "synthetic resin film 32 with a piezoelectric element built therein" is a "substrate," the "piezoelectric element built therein" is not attached to the "substrate" but part of the "substrate." Of course, as noted above, FIG. 24 also does not teach a "substrate shaped as a rigid-body," in contrast to claim 20.

The Examiner's Answer on page 31 states that "Tokuyama... does indeed necessarily disclose two or more solid layers, which are required for magnetic transducing." Appellant respectfully disagrees. It is telling that the Examiner cannot cite anything in Tokuyama supporting his assertion, and instead resorts to arm waving about what heads were like in the 1960's or earlier," and to claim that a "ring-type" head was

“not used anymore in the type of head fabrication utilized in Tokuyama.” Because these statements appear to come from the Examiner’s personal knowledge rather than anything in the cited reference, appellant respectfully requests that the Examiner provide a supporting affidavit as required under 37 CFR 1.104(d)(2). The type of head fabrication used in Tokuyama appears to involve attaching a head to the end of a support made of synthetic resin, as opposed to forming a head by deposition on a ceramic wafer. Although the Examiner’s allegation appears to be carefully worded to imply but not state that “ring-type” heads were no longer used as of the 1991 filing date of Tokuyama, appellant invites the Examiner to provide a supporting affidavit on that point also. Moreover, appellant disagrees with the examiner’s assertion that a “ring head must have two pole layers and a fringing gap.” As noted in several prior communications by appellant, “A horseshoe magnet wound with a coil of wire will operate as suggested by the Final Rejection, and only includes a single layer.” Appellant does not need to argue, as desired by the diversionary tactics of the Examiner’s Answer, that two pole layers are connected, because there are not two pole layers to begin with.

On page 32 of the Examiner’s Answer, the Examiner “maintains that Shirahata shows at least two magnetic layers, one being a magnetoresistive element (7) and the other being another magnetic layer, auxiliary head (5), disposed on the other side of a flexible medium.” As is clear from Shirahata, however, that disclosure teaches the use of two different heads, one of which has a single magnetic material 7 “provided with electrode lead wires 8 and 9,” the other having a single magnetic material 11 and “a winding 10 wound on the magnetic material 11.” In other words, Shirahata actually provides two separate heads that each prove appellant’s point.

Also on page 32 of the Examiner’s Answer, the Examiner claims that “Tokuyama...discloses a coil layer (which generates magnetic flux), in association with two legs transducing layers of a core as is readily seen in FIG. 34 of Tokuyama...” Appellant notes that claim 1 and claim 21 both recite in part, “a plurality of solid transducer layers.” The “coil 200” of Tokuyama is not a “solid transducer layer” but a wire wound in a coil shape. Moreover, Tokuyama does not teach “legs” that are different layers but a single integral “magnetic core 210” that may have been formed in a mold, much like a horseshoe magnet. It appears that the “core 210” was then inserted into an

aperture in the support, or the synthetic resin support was formed in a different mold to encompass the “core 210.” Appellant cannot conceive of a thin-film processing method to make such a “magnetic core 210” that penetrates and partially surrounds either Tokuyama’s “support 30” made of “synthetic resin” or “support 3” made of a sheet of “stainless steel.”

Moreover, FIG. 34 of Tokuyama clearly does not meet other limitations of claim 1 or claim 20, such as “a substrate adjoining said transducer, said substrate shaped as a rigid body adjacent to said transducer and as a plurality of flexible elements distal to said transducer.”

The Examiner’s Answer further states on page 32:

To require just one magnetic layer in a transducer, with no other layer for the magnetic flux to close back on itself, involves the theoretical existence of magnetic monopoles. To date, although theoretically a few magnetic monopoles are thought to exist in the vast universe, they have not been found anywhere in the vicinity of planet Earth, let alone structured to provide a single pole magnetic head, wherein the flux does not close back on itself.

This statement is wrong in many ways, but suffice it to say that it appears to be merely another attempt by the Examiner to divert attention from another issue he cannot confront, that an electromagnetic transducer does not require even a single layer, because coils and loops can perform similar functions, and the reference he has cited does not teach “an electromagnetic transducer including a plurality of solid transducer layers,” as recited in claim 1 and claim 20.

D. The §103 Rejection of Claims 2-4, 11-14, 17, 19, 24 and 25 over Harada in view of IBM Technical Disclosure Bulletin entitled “Piezoelectric Actuator for Small Hard Disk Drive,” Vol. No. 36, Iss. No. 2, pp. 379-380, published February 1, 1993 (hereinafter the “IBM TBD”)

The Examiner’s Answer on pages 33-35 provides a long quote from the Appeal Brief, the accuracy of which appellant has not checked, and then states that “the Appellant is completely off base regarding the alleged non-enabled disclosure of the IBM TDB.”

Appellant understand the Examiner's frustration at encountering the nonenablement of another reference, and will try to simplify the explanation of why the IBM TDB does not work, even though at first glance it appears functional. One problem is that the "rotation of the stage" surrounding piezo B, which is required for the "long stroke movement" shown by arrow A, means that the "stage" must only be held at the "pivot." Because the other parts of the stage are not held, when "piezo B" expands it simply expands the "stage" upward in the figure away from the "pivot," without affecting any rotation about the "pivot."

Moreover, essentially the same argument applies for "piezo A" and its surrounding structure. That is, for the "fine stroke movement" shown by arrow B to be accomplished, "piezo A" and its surrounding structure must be free to move, or at least pivot, perhaps pivoting about the arrowhead leading from the label "PIEZO-A." But if the structure surrounding "piezo A" is free to move or pivot, then expanding "piezo A" will not cause the "long stroke movement" alleged by the IBM TDB.

Moreover, with both the "stage" and the structure surrounding "piezo A" free to move as explained above, even the limited actuation alleged by the IBM TDB would be significantly reduced. In addition, the accuracy of that actuation would also be decreased, as the expansion of either "piezo" element would result in some unknown movement of the "stage" versus the structure surrounding "piezo A." These problems of decreased maximum actuation to significantly less than the ½ inch figure noted in the Examiner's Answer, and increased errors in actuation, which would be mechanically multiplied by a factor of one thousand to greatly exaggerate the increased errors, show that the IBM TDB is not fit to work as an actuator without extreme experimentation, and may never be made to work.

Appellant appreciates the Examiner's admission on page 37 of the Examiner's Answer that he is "completely perplexed" at appellant's explanation of the nonenablement of the IBM TDB, although the Examiner apparently understands that the moon is not made of green cheese. Appellant respectfully asserts, however, that one of ordinary skill in the art would have recognized the nonenablement of the IBM TDB and would have avoided using the IBM TDB.

Due to the myriad problems of the IBM TDB, only some of which were discussed in this Reply, appellant disagrees with the argument on pages 37-38 of the Examiner's Answer that that one of ordinary skill in the art would have been motivated to provide the piezoelectric actuator of the IBM TDB due to the advantages espoused by that reference, because one of such skill would not have believed those alleged advantages after realizing the failure of that reference to work as it alleged. Even the Examiner would probably not believe the IBM TDB if it said the moon is made green cheese. Moreover, because the IBM TDB would fail at the very purpose – actuation – for which it supposedly would have been provided by one of such skill, one of such skill would not have provided it. This may be called “teaching away,” which is strong evidence of nonobviousness. Had the IBM TDB “actuator” somehow been provided to Harada, for example to appease the Examiner, the resulting device would not work, which is a far cry from the invention claimed in the present application, and further evidence of nonobviousness.

The Examiner's Answer on page 41 states that “the Appellant argues continually” and then refers to pages 31-34 of the Appeal Brief. Unfortunately, this is a situation in which appellant should have explained a little more, so that it would be clear even to the Examiner, and then the reviewer would (probably) not have to read the back-and-forth arguments. With regard to claim 3, appellant again “asserts that it is unclear whether the IBM TDB ‘piezo elements’ include layers, let alone whether any such layers would be parallel to anything else.” For example, the “piezo elements” could be cylindrical in shape. The fact that no conductors are shown is another indication of nonenablement of the IBM TDB, that it is just a page of contradictory text and a pair of unworkable drawings, not even a “failed experiment” that “will not serve either as an anticipation or as part of the prior art, for it has not served to enrich it.” Moreover, because “piezo A” is incompatible with “piezo B,” as explained above, one of ordinary skill in the art would not have used both of those “piezo elements,” so that even if they were layers only a single such layer would have been used in any device.

- E. The §103 Rejection of Claim 6 over Harada in view of Endo (JP 06-176517 A) (hereinafter “Endo”)

The Examiner's Answer on page 43 provides for the first time an explicit rejection of claim 6 over Harada in view of Endo. Instead of only alleging that it would be obvious "to provide the teaching of a suspension end flexure support provided as being substantially aligned with a center of mass of the rigid body," the Examiner states, "i.e., by simply shifting the flexures of Harada adjacent the middle of the slider mass, to further provide stable support as taught by Endo."

Neither Harada nor Endo, however, provides a way to accomplish this supposedly simple shifting. As noted in the Appeal Brief, Endo involves a suspension that is fitted into a groove of the slider whereas Harada claims to have gimbals that are located to the side of the slider, and there is no evident way to reconcile these opposite approaches. Although it may seem to be simple to draw a gimbal 3 of Harada that is aligned with a middle of Harada's slider 2, the existing drawings of Harada's gimbal do not make sense, as discussed in the Appeal Brief on page 18, and so changing them as proposed by the Examiner would be problematic. For example, the "sectional view" of drawing 2 shows "gimbal 3" connected to "slider 2," yet the "perspective view" of the same example in drawings 4 and 5 instead shows a space between "gimbal 3" and "slider 2," for any lengthwise cross-section that intersects "head 1."

Moving beyond paper drawings and proposals, there is no hint of how would such a supposedly simple shift could be accomplished. Harada does not teach how to lower the gimbals 3, assuming arguendo that the gimbals 3 are functional. There is also no hint in Harada of how to make the electric wiring 4 connect through the back of slider 2 if gimbals 3 were shifted lower as proposed by the Examiner's Answer. It is tempting, of course, to use the teaching of the present invention as a template to assert that claim 6 is obvious, and to use hindsight to arrive at this conclusion, but claim 6 is certainly not obvious over Harada in view of Endo.

F. The §103 Rejection of Claim 18 over Harada and the IBM TDB in view of Fukuoka (JP 09-148639 A) (hereinafter "Fukuoka")

The Examiner's Answer on pages 45 initially maintains, with regard to claim 18, that both Harada and the IBM TDB are enabled, with which appellant disagrees, as noted above and in the Appeal Brief. The Examiner's Answer then states that the IBM TDB

uses a piezoelectric actuator which must include at a minimum three layers. As noted above, the drawings of the IBM TDB do not show any layers, although the Examiner has a tendency to assume everything is a layer in order to reject appellant's claims that recite layers. What a strange world it would be if everything was indeed shaped as a layer!

III. Appellant appreciates the acknowledgement on page 47 of the Examiner's Answer that claims 3, 13, 22, 25 and 28 define patentable subject matter.

Conclusion

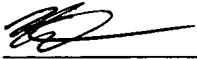
As detailed above, the Examiner's Answer does not correct the deficiencies of the Final Rejection, which fails to state a *prima facie* case of anticipation or obviousness for any of the pending claims. Appellant respectfully asserts that all the pending claims are allowable and requests reversal of the Examiner's rejections.

Respectfully submitted,

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with sufficient postage in the US Postal Service as first class mail in an envelope addressed to: MS Appeal Brief, Commissioner for Patents, P.O.Box 1450, Alexandria, VA 22313-1450, on June 12, 2006.

Date: 6-12-06



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